

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,071,205 B2
APPLICATION NO. : 10/684229
DATED : July 4, 2006
INVENTOR(S) : Lin Zhi et al.

Page 1 of 10

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE TITLE PAGES:

In Item [56] References Cited, in U.S. PATENT DOCUMENTS:

please add the following reference: --6,001,846 A 12/1999 Edwards et al. 514/285--
in 6,566,358 please replace "Zhi et al." with --Zhang et al.--
in 6,566,372 please replace "West et al." with --Zhi et al.--

In Item [56] References Cited, in OTHER PUBLICATIONS:

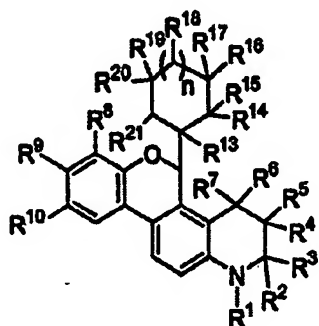
in Hamann et al., please replace "dihyrdo" with --dihydro--

At column 8, Table A, row R¹, please replace "C₁-C haloalkyl" with --C₁-C₄ haloalkyl--
at column 9, Table A, row R⁹, please replace "CONR^HR¹²" with --CONR¹¹R¹²--
at column 11, Table A, below row R¹⁶, please replace "R¹⁵" with --R¹⁶--

Please replace Claims 12, 13, 14, and 15 with the following Claims:

Col. 40

12. A compound of the formula:



(I)

wherein:

R¹ is selected from the group of hydrogen, C₁-C₄ alkyl, C₁-C₄ haloalkyl, C₁-C₄ heteroalkyl, COR¹¹, CO₂R¹¹, SO₂R¹¹, and CONR¹¹R¹²;

R² and R³ each independently is selected from the group of hydrogen, C₁-C₆ alkyl, and C₁-C₆ haloalkyl; or

R² and R³ taken together form a cycloalkyl ring of from three to twelve carbons;

R⁴ through R⁷ each independently is selected from the group of hydrogen, F, Cl, Br, CN, OR¹¹, C₁-C₄ alkyl, C₁-C₄ haloalkyl, and C₁-C₄ heteroalkyl; or

R⁵ and R⁷ taken together form a bond; or

R⁶ and R⁷ taken together are selected from the group of methyldene, mono-substituted methyldene, di-substituted methyldene and carbonyl;

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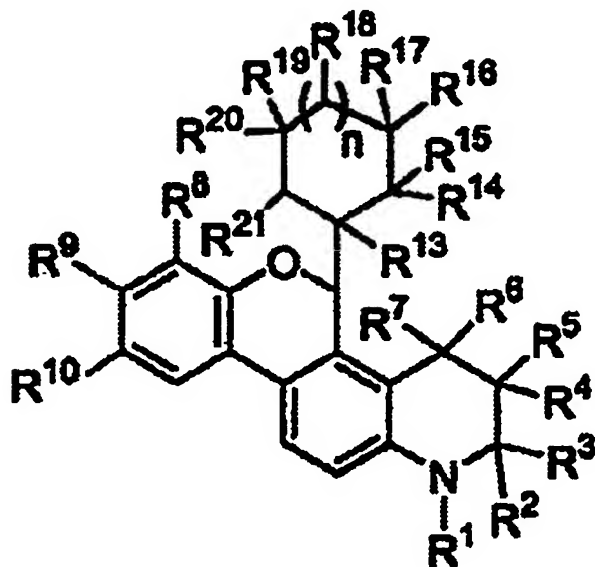
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It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

R^8 through R^{10} each independently is selected from the group of hydrogen, F, Cl, Br, I, NO_2 , CN, OR^{11} , $\text{NR}^{11}\text{R}^{12}$, SR^{11} , COR^{11} , CO_2R^{11} , $\text{CONR}^{11}\text{R}^{12}$, $\text{C}_1\text{--C}_8$ alkyl, $\text{C}_1\text{--C}_8$ heteroalkyl, $\text{C}_1\text{--C}_8$ haloalkyl, allyl, $\text{C}_2\text{--C}_8$ alkenyl and $\text{C}_2\text{--C}_8$ alkynyl;
 R^{11} and R^{12} each is independently selected from the group of hydrogen, $\text{C}_1\text{--C}_4$ alkyl, $\text{C}_1\text{--C}_4$ heteroalkyl, and $\text{C}_1\text{--C}_4$ haloalkyl;
 R^{13} is hydrogen;
 R^{14} and R^{16} taken together form a bond or “—O—” bridge;
 R^{15} , R^{17} , R^{18} , R^{19} , R^{20} each independently is selected from the group of hydrogen, F, Cl, $\text{C}_1\text{--C}_4$ alkyl, and $\text{C}_1\text{--C}_4$ haloalkyl;
 R^{21} is hydrogen; and
 n is 0, 1, 2, or 3;
or a pharmaceutically acceptable salt thereof.

Col. 41

13. A compound of the formula:



(I)

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wherein:

R¹ is selected from the group of hydrogen, C₁-C₄ alkyl, C₁-C₄ haloalkyl, C₁-C₄ heteroalkyl, COR¹¹, CO₂R¹¹, SO₂R¹¹, and CONR¹¹R¹²;

R² and R³ each independently is selected from the group of hydrogen, C₁-C₆ alkyl, and C₁-C₆ haloalkyl; or

R² and R³ taken together form a cycloalkyl ring of from three to twelve carbons;

R⁴ through R⁷ each independently is selected from the group of hydrogen, F, Cl, Br, CN, OR¹¹, C₁-C₄ alkyl, C₁-C₄ haloalkyl, and C₁-C₄ heteroalkyl; or

R⁵ and R⁷ taken together form a bond; or

R⁶ and R⁷ taken together are selected from the group of methyldiene, mono-substituted methyldiene, di-substituted methyldiene and carbonyl;

R⁸ through R¹⁰ each independently is selected from the group of hydrogen, F, Cl, Br, I, NO₂, CN, OR¹¹, NR¹¹R¹², SR¹¹, COR¹¹, CO₂R¹¹, CONR¹¹R¹², C₁-C₈ alkyl, C₁-C₈ heteroalkyl, C₁-C₈ haloalkyl, allyl, C₂-C₈ alkenyl and C₂-C₈ alkynyl;

R¹¹ and R¹² each is independently selected from the group of hydrogen, C₁-C₄ alkyl, C₁-C₄ heteroalkyl, and C₁-C₄ haloalkyl;

R¹³ is hydrogen;

R¹⁴, R¹⁵, R¹⁸, R¹⁹, R²⁰ each independently is selected from the group of hydrogen, F, Cl, C₁-C₄ alkyl, and C₁-C₄ haloalkyl;

R¹⁶ and R¹⁷ taken together are selected from the group of methyldiene, mono-substituted methyldiene, and di-substituted methyldiene;

R²¹ is hydrogen; or

R²¹ and R²⁰ taken together form a bond;

n is 0, 1, 2, or 3;

or a pharmaceutically acceptable salt thereof.

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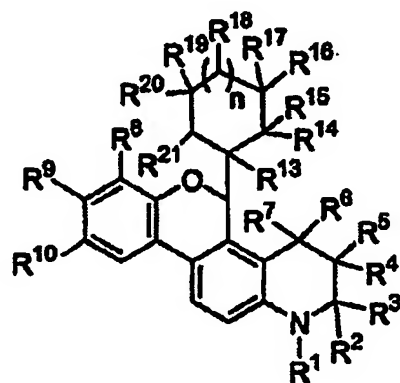
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It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Col. 42

14. A compound of the formula:



(I)

wherein:

- R¹ is selected from the group of hydrogen, C₁–C₄ alkyl, C₁–C₄ haloalkyl, C₁–C₄ heteroalkyl, COR¹¹, CO₂R¹¹, SO₂R¹¹, and CONR¹¹R¹²;
- R² and R³ each independently is selected from the group of hydrogen, C₁–C₆ alkyl, and C₁–C₆ haloalkyl; or
- R² and R³ taken together form a cycloalkyl ring of from three to twelve carbons;
- R⁴ through R⁷ each independently is selected from the group of hydrogen, F, Cl, Br, CN, OR¹¹, C₁–C₄ alkyl, C₁–C₄ haloalkyl, and C₁–C₄ heteroalkyl; or
- R⁵ and R⁷ taken together form a bond; or
- R⁶ and R⁷ taken together are selected from the group of methyldiene, mono-substituted methyldiene, di-substituted methyldiene and carbonyl;
- R⁸ through R¹⁰ each independently is selected from the group of hydrogen, F, Cl, Br, I, NO₂, CN, OR¹¹, NR¹¹R¹², SR¹¹, COR¹¹, CO₂R¹¹, CONR¹¹R¹², C₁–C₈ alkyl, C₁–C₈ heteroalkyl, C₁–C₈ haloalkyl, allyl, C₂–C₈ alkenyl and C₂–C₈ alkynyl;

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R¹¹ and R¹² each is independently selected from the group of hydrogen, C₁-C₄ alkyl, C₁-C₄ heteroalkyl, and C₁-C₄ haloalkyl;

R¹³ is hydrogen;

R¹⁴, R¹⁵, R¹⁷, R²⁰ each independently is selected from the group of hydrogen, F, Cl, C₁-C₄ alkyl, and C₁-C₄ haloalkyl;

R¹⁶ and R¹⁸ taken together form a bond when n is 1;

R¹⁶ and R¹⁹ taken together form a bond when n is 0;

R²¹ is hydrogen; and

n is 0, 1, 2, or 3;

or a pharmaceutically acceptable salt thereof.

Col. 42-45

15. A Compound selected from the group of:

(±)-(51,1'l)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 24);

(±)-(51,1'u)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 25);

(+)-(51,1'l)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 27);

(-)-(51,1'l)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 28);

(±)-(51,1'l)-5-(3-methyl-2-cyclohexenyl)-9-hydroxy-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 29);

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- (±)-(51,1'u)-5-(3-methyl-2-cyclohexenyl)-9-hydroxy-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 30);
(+)-(51,1'l)-5-(3-methyl-2-cyclohexenyl)-9-hydroxy-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 32);
(-)-(51,1'l)-5-(3-methyl-2-cyclohexenyl)-9-hydroxy-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 33);
(±)-(51,1'l)-5-(3-methyl-2-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 34);
(±)-(51,1'u)-5-(3-methyl-2-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 35);
(+)-(51,1'l)-5-(3-methyl-2-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 37);
(-)-(51,1'l)-5-(3-methyl-2-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 38);
(±)-(51,1'l)-5-(3-methyl-2-cyclohexenyl)-9-methoxy-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 39);
(±)-(51,1'l)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2-dimethyl-5H-chromeno[3,4-f]quinoline (compound 41);
(±)-(51,1'u)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2-dimethyl-5H-chromeno[3,4-f]quinoline (compound 42);
(±)-(51,1'l)-5-(3-methyl-2-cyclopentenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 44);
(±)-(51,1'u)-5-(3-methyl-2-cyclopentenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 45);

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- (±)-(51,1'1)-5-(3,5,5-trimethyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 47);
(±)-(51,1'u)-5-(3,5,5-trimethyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 48);
(±)-(51,1'1)-5-(3-methyl-2-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 50);
(±)-(51,1'u)-5-(3-methyl-2-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 51);
(±)-5-(3-methyl-3-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 52);
(±)-5-(2-cyclopenta-1,3-dienyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 53);
(±)-(51,1'1)-5-(3-ethyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 55);
(±)-(51,1'u)-5-(3-ethyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 56);
(±)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-7-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 58);
(±)-(51,1'u)-5-(3-methyl-2-cyclohexenyl)-7-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 59);
(±)-(51,1'1)-5-(3-ethyl-2-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 61);
(±)-(51,1'1)-5-(3-ethylidenecyclohexyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 62);

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It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

- (±)-(51,1'1)-5-(3-methyl-3-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 63);
(±)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-8-methoxy-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 64);
(±)-(51,1'u)-5-(3-methyl-2-cyclohexenyl)-9-fluoro-1,2-dihydro-8-methoxy-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 65);
(±)-(51,1'1)-5-(2-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 67);
(±)-(51,1'u)-5-(2-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 68);
(±)-5-(1-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 69);
(±)-(51,1'1)-5-(2,3-dimethyl-2-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 71);
(+)-(51,1'1)-5-(2,3-dimethyl-2-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 73);
(-)-(51,1'1)-5-(2,3-dimethyl-2-cyclopentenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 74);
(±)-(51,1'1)-5-(2-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 75);
(±)-(51,1'u)-5-(2-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 76);
(±)-(51,1'1)-5-(2-cyclohexenyl)-7,9-difluoro-1,2,3,4-tetrahydro-2,2-dimethyl-4-methylidene-5H-chromeno[3,4-f]quinoline (compound 77);

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- (±)-(51,1'l)-5-(2-methylidenecyclohexyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 79);
(±)-(51,1'u)-5-(2-methylidenecyclohexyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 80);
(±)-(51,1'l)-5-(2-oxocyclohexyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 81);
(±)-(51,1'u)-5-(2-oxocyclohexyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 82);
(±)-(51,1'l)-5-(3-methyl-2-cyclohexenyl)-9-methoxy-1,2-dihydro-1,2,2,4-tetramethyl-5H-chromeno[3,4-f]quinoline (compound 83);
(±)-5-(2-cyclohexenyl)-9-fluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 84);
(±)-(51,1'l)-5-(2,3-dimethyl-2-cyclohexenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 85);
(±)-5-(3-methylidene-cyclohexyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 87);
(±)-(51,1'u)-5-(3-ethylidenecyclohexyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (compound 88);
(±)-(51,1'l)-5-(2-cycloheptenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (Compound 89);
(±)-(51,1'l)-5-(2-cyclooctenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (Compound 91);
(±)-(51,1'u)-5-(2-cyclooctenyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (Compound 92);

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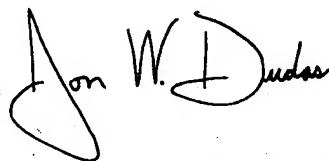
It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

(±)-(51,1'1)-5-(2,3-epoxy-3-methylcyclohexyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (Compound 94);
(±)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-7,9-difluoro-1,2,3,4-tetrahydro-2,2-dimethyl-4-methylene-5H-chromeno[3,4-f]quinolin-3-ol (Compound 95);
(±)-(51,1'1)-5-(2,3-epoxy-2,3-dimethylcyclopentyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (Compound 96);
(±)-(51,1'u)-5-(2,3-epoxy-3-methylcyclohexyl)-7,9-difluoro-1,2-dihydro-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline (Compound 97); and
(±)-(51,1'1)-5-(3-methyl-2-cyclohexenyl)-7,9-difluoro-1,2,3,4-tetrahydro-2,2-dimethyl-5H-chromeno[3,4-f]quinolin-4-one (Compound 98).

This certificate supersedes Certificates of Correction issued November 28, 2006 and April 3, 2007.

Signed and Sealed this

Twenty-fourth Day of July, 2007



JON W. DUDAS
Director of the United States Patent and Trademark Office